

Listing of Claims

This claim set is to replace all prior versions.

1. (Currently amended) A method of modifying ~~at least one of bandwidth and~~ quality of service for ~~a~~ an existing user session in a network that comprises a regional access network that facilitates differentiated end-to-end data transport between ~~at least one of a network service provider and an application~~ a service provider and a customer premises network that includes customer premises equipment, comprising:

receiving a request at ~~at least one of the network service provider and the application~~ the service provider to change ~~at least one of bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session; and

using application programming interface calls at ~~at least one of the network service provider and the application~~ the service provider to communicate with the regional access network to modify the ~~at least one of bandwidth and~~ quality of service associated with the existing user ~~user's~~ session.

2. (Currently amended) The method of Claim 1, wherein receiving the request comprises:

initiating the request at ~~at least one of the network service provider and the application~~ the service provider to change ~~at least one of the bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session.

3. (Currently amended) The method of Claim 1, wherein receiving the request comprises:

receiving the request at ~~at least one of the network service provider and the application~~ the service provider from a user to change ~~at least one of the bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session.

4. (Currently amended) The method of Claim 3, wherein the quality of service associated with the existing user ~~user's~~ session is scheduling resources.

5. (Currently amended) The method of Claim 4, wherein using the application programming interface comprises:

sending a query from ~~at least one of the network service provider and the application~~ the service provider to the regional access network to obtain ~~at least one of a bandwidth range and~~ quality of service capabilities from the regional access network.

6. (Currently amended) The method of Claim 5, further comprising:

presenting to the user via ~~at least one of the application service provider and the network~~ the service provider ~~at least one bandwidth or a~~ quality of service option within ~~at least one of the bandwidth range and the~~ quality of service capabilities received from the regional access network.

7. (Currently amended) The method of Claim 6, further comprising:

obtaining a user selection of ~~one of the at least one bandwidth or the~~ quality of service option at ~~at least one of the network service provider and the application~~ the service provider; and

updating the regional access network with information to provide the ~~selected bandwidth or~~ quality of service option for the existing user user's session.

8. (Currently amended) The method of Claim 7, further comprising:

updating the customer premises equipment with the information to provide the ~~selected bandwidth or~~ quality of service option for the existing user user's session.

9. (Currently amended) The method of Claim 8, wherein updating the customer premises equipment with information comprises:

sending ~~at least one of an update session bandwidth info message and a~~ quality of service -related message from the regional access network to the customer premises equipment that contains a request for changing the ~~bandwidth or~~ quality of service associated with the existing user user's session to the ~~selected bandwidth~~ quality of service option in the customer premises equipment.

10. (Currently amended) The method of Claim 9, wherein updating the regional access network with information further comprises:

updating at least one of a rate limit and quality of service associated with a communication queue in the regional access network that is used to process traffic associated with the existing user user's session.

11. (Canceled)

12. (Canceled)

13. (Currently amended) The method of Claim 11, wherein updating the regional access network with information further comprises:

updating a rate limit associated with a communication queue in the regional access network that is used to process traffic associated with the existing user user's session.

14. (Currently amended) The method of Claim 5, further comprising:

~~authenticating at least one of the network service provider and the application~~ the service provider with the regional access network prior to sending the query from ~~at least one of the network service provider and the application~~ the service provider to the regional access network.

15. (Currently amended) The method of Claim 14, wherein authenticating ~~at least one of the network service provider and the application~~ the service provider with the regional access network comprises:

sending an establish service session request message from ~~at least one of the network service provider and the application~~ the service provider to the regional access network that contains an identification of ~~at least one of the network service provider and the application~~ the service provider and authorization credentials; and

sending an establish service session response message from the regional access network to ~~at least one of the network service provider and the application~~ the service provider that contains an authentication result.

16. (Canceled)

17. (Currently amended) The method of Claim 1, wherein the request is a first request, the method further comprising:

updating the regional access network and the customer premises equipment with information to modify ~~at least one of the bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session; then

receiving a second request at ~~at least one of the network service provider and the application~~ the service provider to delete or change ~~at least one of bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session; and

using application programming interface calls at ~~at least one of the network service provider and the application~~ the service provider to communicate with the regional access network to change ~~at least one of the bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session to a default value in the regional access network.

18. (Previously presented) The method of Claim 1, wherein the regional access network comprises a broadband remote access server.

19 (Currently amended) A system for modifying ~~at least one of bandwidth and~~ quality of service for a an existing user session in a network that comprises a regional access network that facilitates differentiated end-to-end data transport between ~~at least one of a network service provider and an application~~ a service provider and a customer premises network that includes customer premises equipment, comprising:

means for receiving a request at ~~and the network service provider and the application~~ the service provider to change ~~at least one of bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session; and

means for using application programming interface calls at ~~and the network service provider and the application~~ the service provider to communicate with the regional access network to modify ~~at least one of the bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session.

20. (Currently amended) The system of Claim 19, wherein the means for receiving the request comprises:

means for initiating the request at ~~at least one of the network service provider and the application~~ the service provider to change ~~at least one of the bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session.

21. (Currently amended) The system of Claim 19, wherein the means for receiving the request comprises:

means for receiving the request at ~~at least one of the network service provider and the application~~ the service provider from a user to change ~~at least one of the bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session.

22. (Currently amended) The system of Claim 21, wherein the quality of service associated with the existing user ~~user's~~ session is scheduling resources.

23. (Currently amended) The system of Claim 22, wherein the means for using the application programming interface comprises:

means for sending a query from ~~at least one of the network service provider and the application~~ the service provider to the regional access network to obtain ~~at least one of a bandwidth range and~~ quality of service capabilities from the regional access network.

24. (Currently amended) The system of Claim 23, further comprising:

means for presenting to the user via ~~at least one of the application service provider and the network~~ the service provider ~~at least one bandwidth or~~ quality of service option within at

~~least one of the bandwidth range and~~ the quality of service capabilities received from the regional access network.

25. (Currently amended) The system of Claim 24, further comprising:
means for obtaining a user selection of one of the ~~at least one bandwidth or~~ quality of service option at ~~at least one of the network service provider and the application~~ the service provider; and
means for updating the regional access network with information to provide the ~~selected bandwidth or~~ quality of service option for the existing user user's session.

26. (Currently amended) The system of Claim 25, further comprising:
means for updating the customer premises equipment with the information to provide the ~~selected bandwidth or~~ quality of service option for the existing user user's session.

27. (Currently amended) The system of Claim 26, wherein the means for updating the customer premises equipment with information comprises:
means for sending ~~at least one of an update session bandwidth info message and a~~ quality of service -related message from the regional access network to the customer premises equipment that contains a request for changing ~~the bandwidth or~~ quality of service associated with the existing user user's session to the ~~selected bandwidth~~ quality of service option in the customer premises equipment.

28. (Currently amended) The system of Claim 27, wherein the means for updating the regional access network with information further comprises:
means for updating at least one of a rate limit and quality of service associated with a communication queue in the regional access network that is used to process traffic associated with the existing user user's session.

29. (Canceled)

30. (Canceled)

31. (Currently amended) The system of Claim 29, wherein the means for updating the regional access network with information further comprises:

means for updating a rate limit associated with a communication queue in the regional access network that is used to process traffic associated with the existing user ~~user's~~ session.

32. (Currently amended) The system of Claim 23, further comprising:

means for authenticating ~~at least one of the network service provider and the application~~ the service provider with the regional access network prior to sending the query from ~~at least one of the network service provider and the application~~ the service provider to the regional access network.

33. (Currently amended) The system of Claim 32, wherein the means for authenticating ~~at least one of the network service provider and the application~~ the service provider with the regional access network comprises:

means for sending an establish service session request message from ~~at least one of the network service provider and the application~~ the service provider to the regional access network that contains an identification of ~~at least one of the network service provider and the application~~ the service provider and authorization credentials; and

means for sending an establish service session response message from the regional access network to ~~at least one of the network service provider and the application~~ the service provider that contains an authentication result.

34. (Canceled)

35. (Currently amended) The system of Claim 19, wherein the request is a first request, the system further comprising:

means for updating the regional access network and the customer premises equipment with information to modify ~~at least one of the bandwidth and~~ the quality of service associated with the existing user user's session;

means for receiving a second request at ~~at least one of the network service provider and the application~~ the service provider to delete or change ~~at least one of bandwidth and~~ the quality of service associated with the existing user user's session; and

means for using application programming interface calls at ~~at least one of the network service provider and the application~~ the service provider to communicate with the regional access network to change ~~at least one of the bandwidth and~~ the quality of service associated with the existing user user's session to a default value in the regional access network.

36. (Previously presented) The system of Claim 19, wherein the regional access network comprises a broadband remote access server.

37. (Currently amended) A computer program product for modifying ~~at least one of bandwidth and~~ quality of service for a an existing user session in a network that comprises a regional access network that facilitates differentiated end-to-end data transport between ~~at least one of a network service provider and an application~~ a service provider and a customer premises network that includes customer premises equipment, comprising:

a computer readable storage medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code configured to receive a request at ~~at least one of the network service provider and the application~~ the service provider to change ~~at least one of bandwidth and~~ the quality of service associated with the existing user user's session; and

computer readable program code configured to use application programming interface calls at ~~at least one of the network service provider and the application~~ the service provider to communicate with the regional access network to modify the ~~at least one of bandwidth and~~ quality of service associated with the existing user user's session.

38. (Currently amended) The computer program product of Claim 37, wherein the computer readable program code configured to receive the request comprises:

computer readable program code configured to initiate the request at ~~at least one of the network service provider and the application~~ the service provider to change ~~at least one of the bandwidth and the~~ quality of service associated with the existing user ~~user's~~ session.

39. (Currently amended) The computer program product of Claim 37, wherein the computer readable program code configured to receive the request comprises:

computer readable program code configured to receive the request at ~~at least one of the network service provider and the application~~ the service provider from a user to change ~~at least one of the bandwidth and the~~ quality of service associated with the existing user ~~user's~~ session.

40. (Currently amended) The computer program product of Claim 39, wherein the quality of service associated with the existing user ~~user's~~ session is scheduling resources.

41. (Currently amended) The computer program product of Claim 40, wherein the computer readable program code configured to use the application programming interface comprises:

computer readable program code configured to send a query from ~~at least one of the network service provider and the application~~ the service provider to the regional access network to obtain ~~at least one of a bandwidth range and~~ quality of service capabilities from the regional access network.

42. (Currently amended) The computer program product of Claim 41, further comprising:

computer readable program code configured to present to the user via ~~at least one of the application service provider and the network~~ the service provider ~~at least one bandwidth or a~~ quality of service option within ~~at least one of the bandwidth range and the~~ quality of service capabilities received from the regional access network.

43. (Currently amended) The computer program product of Claim 42, further comprising:

computer readable program code configured to obtain a user selection of ~~one of the at least one bandwidth or the~~ quality of service option at ~~at least one of the network service provider and the application~~ the service provider; and

computer readable program code configured to update the regional access network with information to provide the ~~selected bandwidth or~~ quality of service option for the existing user user's session.

44. (Currently amended) The computer program product of Claim 43, further comprising:

computer readable program code configured to update the customer premises equipment with the information to provide the ~~selected bandwidth or~~ quality of service option for the existing user user's session.

45. (Currently amended) The computer program product of Claim 44, wherein the computer readable program code configured to update the customer premises equipment with information comprises:

computer readable program code configured to send ~~at least one of an update session bandwidth info message and~~ a quality of service -related message from the regional access network to the customer premises equipment that contains a request for changing the ~~bandwidth or~~ quality of service associated with the existing user user's session to the ~~selected bandwidth~~ quality of service option in the customer premises equipment.

46. (Currently amended) The computer program product of Claim 45, wherein the computer readable program code configured to update the regional access network with information further comprises:

computer readable program code configured to update at least one of a rate limit and quality of service associated with a communication queue in the regional access network that is used to process traffic associated with the existing user user's session.

47. (Canceled)

48. (Canceled).

49. (Currently amended) The computer program product of Claim 47, wherein the computer readable program code configured to update the regional access network with information further comprises:

computer readable program code configured to update a rate limit associated with a communication queue in the regional access network that is used to process traffic associated with the existing user ~~user's~~ session.

50. (Currently amended) The computer program product of Claim 41, further comprising:

computer readable program code configured to authenticate ~~at least one of the network service provider and the application~~ the service provider with the regional access network prior to sending the query from ~~at least one of the network service provider and the application~~ the service provider to the regional access network.

51. (Currently amended) The computer program product of Claim 50, wherein the computer readable program code configured to authenticate ~~at least one of the network service provider and the application~~ the service provider with the regional access network comprises:

computer readable program code configured to send an establish service session request message from ~~at least one of the network service provider and the application~~ the service provider to the regional access network that contains an identification of ~~at least one of the network service provider and the application~~ the service provider and authorization credentials; and

computer readable program code configured to send an establish service session response message from the regional access network to ~~at least one of the network service provider and the application~~ the service provider that contains an authentication result.

52. (Canceled)

53. (Currently amended) The computer program product of Claim 37, wherein the request is a first request, the computer program product further comprising:

computer readable program code configured to update the regional access network and the customer premises equipment with information to modify ~~at least one of the bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session;

computer readable program code configured to receive a second request at ~~at least one of the network service provider and the application~~ the service provider to delete or change ~~at least one of bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session; and

computer readable program code configured to use application programming interface calls at ~~at least one of the network service provider and the application~~ the service provider to communicate with the regional access network to change ~~at least one of the bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session to a default value in the regional access network.

54. (Previously presented) The computer program product of Claim 37, wherein the regional access network comprises a broadband remote access server.

55. (Currently amended) A method of modifying ~~at least one of bandwidth and~~ quality of service for a an existing user session in a network that comprises a regional access network that facilitates differentiated end-to-end data transport between ~~at least one of a network service provider and an application~~ a service provider and a customer premises network that includes customer premises equipment, comprising:

receiving a request at ~~at least one of the network service provider and the application~~ the service provider to change ~~at least one of bandwidth and~~ the quality of service associated with the existing user ~~user's~~ session; and

using messaging interface calls at ~~at least one of the network service provider and the application~~ the service provider to communicate with the regional access network to modify at

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Filed: January 13, 2004
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~~least one of the bandwidth and~~ the quality of service associated with the existing user ~~user's~~
session.